Medicolegal News and Views

Virginia Department of Health, Office of the Chief Medical Examiner **Vol.2, #1, Winter 2002**

Welcome to Governor Mark R. Warner!

ANNOUNCEMENTS

Upcoming Virginia Institute of Forensic Science and Medicine Courses

Basic Forensic Science and Medicine Seminar
April 15-19, 2002

Advanced Forensic Science and Medicine Seminar
May 6-10, 2002

Advanced Bugs, Bones, Botany Covert Burial
June 3-7, 2002

Virginia Crossings Conference Resort
1000 VA Center Parkway
Glen Allen, VA 23060

For more information, call Linda Carne, Education and Training Director, at:

(804) 786-6063

OR

Visit their web site at:
www.vifsm.org

Inside this issue:

A Note From Our Chief -

Virginia medical examiners play an important role in combating terrorism by assessing deaths reported to them for the risk of death due to bioterrorism agents. Surveillance for bioterrorism deaths is both a public health and criminal justice mission. Deaths due to bioevents may be due to an infectious "natural disease" but when a disease is initiated by criminal terrorist activity the deaths are homicides. Therefore, any death due to, or suspected of being due to, anthrax, tularemia, plague, smallpox or botulism should be reported to the medical examiner. The Virginia Department of Health (VDH) has worked diligently to raise awareness and educate Virginia physicians about these unusual and uncommon diseases which are described in more detail at the VDH website www.vdh.state.va.us.

Of special interest to medical examiners are deaths where previously healthy persons may have become acutely ill and progressed rapidly to death at home after respiratory illness with fever, gastrointestinal illness, encephalitis or meningitis, or neuromuscular illness (as seen with botulism, fever with rash and unexplained bleeding disorders). Because death occurred at home, these deaths will not enter hospitals where hospital medical surveillance systems will identify them as suspicious deaths related to bioterrorism. Careful assessment of the scene for evidence of antecedent illness may be helpful in sorting out sudden catastrophic natural death from deaths due to bioterrorism. New prescriptions, nearby over-the-counter medications and evidence of home remedies are suggestive of an antecedent acute illness. Virginia has been fortunate to have two victims of Anthrax recover from their illness. However, Virginia's proximity to the center of Government and its multiple military installations heighten the need for continuing vigilance. Local medical examiners should consult with district office pathologists if they suspect an apparently "natural" death may be due to a bioterrorism agent.

M. Fierro, M.D.

How to Properly Certify a Cremation or Burial at Sea

by Dr. Elizabeth Kinnison
Asst. Chief Medical Examiner,
Tidewater District

The Virginia Code section *§ 32.1-284* states in part that "No dead human body whose death occurred in Virginia shall be cremated or buried at sea, irrespective of the cause and manner of death, unless a medical examiner shall determine that there is no further need for medicolegal inquiry into the death and shall so certify upon a form supplied by the Chief Medical Examiner."

To properly certify such a death keep in mind the following practices:

1. Review the death certificate to ensure that it has a properly certified cause of death. No death may be certified for cremation without an actual review of the certificate of death.
2. Usually a decedent may be cremated with a red border medical examiner certificate that reads pending for the cause and manner of death, but if you are unsure, contact your district pathologist. Any green border (non-ME) death certificate that reads pending needs further inquiry of the attending physician as to the suspected cause and manner to ensure that the death is not a medical examiner's case.
3. A properly certified death certificate does not contain a mechanism such as cardiac or respiratory arrest as the cause of death. This should elicit further inquiry of the physician who signed the death certificate to confirm the underlying medical disease and to exclude intoxication, poison or injury.
4. All death certificates with traumatic or unnatural causes must be certified on a red border death certificate by a medical examiner. Certain causes of death should elicit further investigation if present on a green border death certificate which, in Virginia, assumes a non-medical examiner case and a natural cause and manner of death). Causes such as a subdural hematoma, intracranial hemorrhage, pulmonary emboli, fracture or complications of any type of injury are examples of causes that may be natural or unnatural. This investigation may once again be limited to a discussion with the attending physician to confirm, for example, that the intracranial hemorrhage is actually a hemorrhagic stroke or the fracture is a pathological fracture due to metastatic disease.

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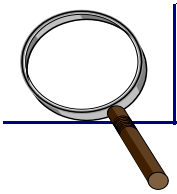
Occasionally, while reviewing a green border death certificate, you may realize that the case actually falls under the jurisdiction of the medical examiner. In such cases, the medical examiner should accept jurisdiction of the case and investigate it accordingly including completing a CME-1, examining the body, obtaining a blood sample, and issuing a new red border (ME) death certificate. Contact the district office for further advice as necessary or if you think an autopsy is indicated.

5. Confirm the identity of the deceased by checking the hospital, funeral home or police department band or tag.
6. REMOVE THE CLOTHING and examine all skin surfaces to look for unsuspected injuries. Be sure to lift the arms, pendulous breasts, panniculi and genitalia. Also, examine the posterior skin surfaces and palpate the head. If you find unexpected injuries, surgical incisions or casts indicative of traumatic injury, or evidence of neglect or abuse, further investigation is required, and you will need to accept jurisdiction of the case. Once again, contact the district office for advice as necessary.
7. If a death occurs in Virginia, but the decedent is to be cremated in another state, a Virginia medical examiner must still examine the decedent, review the circumstances of the death, and complete a Virginia cremation/burial at sea form. If a death occurs outside of Virginia, but the body is to be cremated in Virginia, there is no requirement that a Virginia medical examiner complete a cremation certificate. Occasionally, a funeral home will insist that you inspect and certify an out of state death for cremation. Refer them to the district office for advice if there is confusion over out of state deaths.

Most cremation certifications are not problematic. Cremation fees are paid directly to the medical examiner by the organization seeking certification.



INVESTIGATORS' CORNER … *Outdoor Drowning Investigation*

by Lori Hardin, Medicolegal Death Investigator, Tidewater District

Deaths thought to be drowning in an outdoor environment can cause some difficult investigative issues. Climatic conditions can preserve the remains, as in cold water drowning or promote rapid decomposition as in warm water, polluted water, fast current and/or depredation by aquatic life.

When investigating a possible drowning, a complete description of the body of water including the surrounding area is essential. In addition to the decedent's overall health, medications and swimming ability, collection of the following information can explain the artifacts found during examination as well as assist in the determination of the manner of the death. For pools or hot tubs, describe the type (public, private, residential, in ground, or above ground). Provide the overall length, width, maximum depth and minimum depth of the pool or tub as well as the water itself. Describe the water. Was it clear or murky with leaves, sand and/or other debris? What was the water temperature when the remains were found? What was the estimated water temperature at the time the decedent entered the water and how long was the person thought to have been in the tub. Ask the police to obtain a water sample at the time the body is removed in case the water itself becomes an issue. Information to gather about the surrounding pool/tub area includes: Fencing: including type of fence, gates, their heights and the overall condition. Were there objects around the fence allowing for access over or through the fence? What was the surface surrounding the pool/tub like? Lighting: Was it daylight when the decedent entered the water? If at night, were there lights in the area of entry? Were the lights on? Witnesses: Was the drowning during "normal" pool hours? Was a lifeguard on duty? Were other people in the area? Did they see of hear anything? Did they attempt recovery and/or CPR

For "natural" bodies of water, such as lakes, ponds, rivers, flood waters, and ocean, additional scene information is required. Document the type of water, fresh, salt or both. Document the name of the body of water. Is the water moving? What is the swiftness of various depths of the water, if any? How deep was the body when found? Document the type of bottom: rocks, sand, mud, boulders, etc to enable the correlation, if any, with injury to the body. What type of aquatic life is in the area of body recovery and/or where it traveled? Describe the type of marine traffic in the area, boats, jet skis, commercial/military shipping.

The point of entry is important to document as well. Evidence found at the point of entry may well determine the manner of death. Document the bank type at the point of entry. Were any clothing or valuables left behind, sporting equipment, flotation devices, helmets, and/or boats, drug or alcohol containers? Document how the decedent *Continued on Page 3*

In the Spotlight

WILLIAM G. EDDINS, M.D.
Western District
Medical Examiner

Dr. Eddins has been a medical examiner for 28 years, currently serving Roanoke County, Roanoke City, Salem, and acting M.E. for Craig County. He received his medical training at the Medical College of Virginia and began practice in 1969. He retired from Carilion Family Medicine (Salem Office) in 1998. Dr. Eddins sees the medical examiner profession as a service to the community and says that his role as a medical examiner has resulted in good friendships with law enforcement, legal communities, and other medical examiner professionals.

DIANE JONES
Western District
Executive Secretary, Sr.

Diane has worked as Office Service at the OCME for ten years, the first five years at the Northern office and the last five years at Western. She has held the Office Services Specialist and Executive Secretary, Sr. positions at both district offices. While working at the Western District office, Diane attended Bluefield College at night and received her Bachelor of Science degree in Organizational Management and Development in 1998.

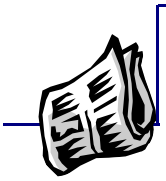
Diane says her work at the OCME has always been interesting and offers a great deal of variety.

Drowning….Continued from Page 2

came to the point of entry. Did he/she drive, ride a bike, walk, get dropped off/dumped? Where any notes left behind? Evidence of other persons in the area?

As you can see, drowning scenes pose a need for extensive documentation. Although the death may not be at the site of the drowning, it is very important to collect the details of the scene to assist in the determination of the case.

Most drownings are candidates for autopsy, especially if the event is unwitnessed, unclear for circumstance, related to alcohol or drugs, show signs of decomposition, on-the-job or shows injury. Consult the district office for any questions on deaths due to drowning.



OCME DISTRICT NEWS

Central District

The Central District OCME would like to welcome Dr. James Mize, as medical examiner for Charlottesville City and Albemarle County, and Dr. S. Sutton Hamilton, medical examiner for Nottoway County.

We would also like to welcome the following people to our office staff: Shirley Tolley (Office Service Specialist), Mary Oliver (Receptionist), Christine Craig, (Per Diem Medicolegal Death Investigator), and Mark Baggett (Per Diem Medicolegal Investigator).

Congratulations to Dr. William Gormley, Nancy Bull, and Elizabeth Frank for passing their Amateur Radio Technician class license.

Tidewater District:

The Tidewater OCME recently underwent and successfully passed accreditation with the National Association of Medical Examiners.

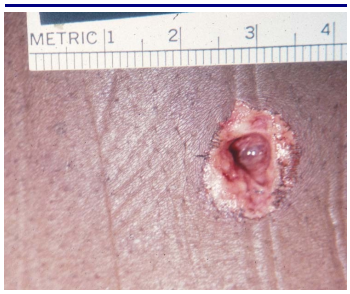
A one year forensic pathology fellowship has been established in conjunction with the Eastern Virginia Medical School.

Western District:

Special thanks to Dr. John Bing, local medical examiner for Henry and Pittsylvania counties, retiring after 41 years of service, and to Dr. John Jofko who resigned as local medical examiner for Roanoke County and Roanoke City, having served the community for 34 years.

Welcome to several newly appointed medical examiners: Dr. Elizabeth Clemens (Lee County), Dr. John Veltman (Montgomery County), Dr. James Ho (Wise County and Norton), Dr. Michael Donato (Roanoke City, Roanoke County and Salem), Dr. David Brady (Roanoke City, Roanoke County, Salem and Russell County), and Drs. Donald Clary, Susan Griffin, Dixon Williams, Carl Hanks, and P. Ferraraccio (Pulaski County). Diane Jones, Executive Secretary Sr., was recognized for 10 years of service at OCME.

What Is It?



Entrance vs. Exit Wound? This 33-year-old male was found dead outside wearing a heavy leather jacket.

This photograph is an example of a **shored exit** wound. It resembles a typical distant gunshot entrance wound. Entrance wounds are characterized by a central, round to oval hole surrounded by a zone of abraded skin called the abrasion ring. The abrasion ring is produced when the bullet abrades or rubs the edges of the bullet hole as it indents and pierces the skin.

Exit wounds are usually more irregular in shape and are often stellate or slit-like. Typically, they do not have an abrasion ring, except on rare occasions. When a broad, irregular band of abraded skin is present around an exit wound, the wound is referred to as a shored exit. This abrasion occurs when the skin is reinforced, or "shored" up, by a firm surface at the moment the bullet exits. The skin can be shored up by many things in the environment, including the ground, a wall or a piece of furniture such as a chair back if the skin at the point of exit is pushed outward against the firm surface or even another body part if there is a reentry wound. Shored exits wounds can also be caused by tight, heavy, supportive clothing (girdles, heavy leather jackets, belts, bras, tight pant waistbands) and personal effects (wallets, note pads or books carried in a pocket or tucked into a waistband) if located over the exit wound. Rarely, the pattern of cloth overlying the shored exit may imprint on the abraded margins of the wound.

Shored exit wounds may be difficult to distinguish from entrance wounds. If the gunshot wound entrance is contact or intermediate range, the presence of soot and/or powder stippling will make the determination of entrance and exit wounds less difficult. If no powder residues are visible on the skin, the wound may be resected by the pathologist and examined microscopically for the presence of foreign fibers, powder residues, heat effect or an in turning of dermal collagen in entrance wounds. Exit wounds should not display these features. If clothing is covering the wound at the time of the shooting, the clothing should be examined carefully for powder residues and bullet wipe. Bullet wipe occurs when dirt and lubricant wipes off the bullet and deposits as a ring of dirt around the clothing entrance. Occasionally the frayed fibers of the cloth at the entrance wound may be helpful if the fibers are turned inward following the path of the bullet. When no visible residues are seen on the clothing, the clothing may be submitted to a firearms examiner for chemical testing. Lastly, radiographs can assist in entrance and exit wound determination. Often, bullets will leave minute shards of lead in the tissues near the entrance. Also, if the bullet perforates a bone, it may produce beveling of the inner or outer table of bone or a fracture pattern of the bone providing a clue as to the direction of travel of the bullet through the body.

If despite your best efforts, the entrance and exit determination remains elusive, you can always describe the wounds and state that the entrance and exit cannot be accurately determined from your examination. In this case, the heavy leather jacket produced the shored exit wound on the back. If the decedent is transferred to the district office from a hospital after undressing and treatment, remember that the clothing should still accompany the body or be available for the pathologist to view at the time of the autopsy.

by Leah Bush, M.D.
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Virginia Department of Health,
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ANATOMICAL "GIFTS"

Have your patients or friends ever asked you "Can I donate my body to science?", "Who do I call and what does it cost?", or "How will my family know what to do when I die?"

All these questions can be answered by the State Anatomical Program staff at the Office of the Chief Medical Examiner in Richmond.

Donation of the body is a gift of education to the many doctors, nurses, and other health professionals studying in the Virginia medical schools. This is a gift of discovery and knowledge to the many researchers in Virginia studying new ways to prevent illness, treat diseases, and develop innovative surgical techniques.

Body donation programs are different depending upon the state you live in.

Some states have programs administrated by the medical schools, and some states administer their own programs. In Virginia, the State Anatomical Program was founded in 1919 and is administered by the Virginia State Department of Health through the Office of the Chief Medical Examiner in Richmond, Virginia. All the medical schools and teaching facilities in this state can then request anatomical material through this one location. This type of system facilitates the proper maintenance and fair distribution of anatomically sound bodies to all schools. This also saves the schools from the administrative burden and expense of finding donors and properly preparing the anatomical material.

If you have a patient who is interested in donating their body to science, please have him/her call the Virginia State Anatomical Program at (804)-786-2479 and request a brochure or log on to our web site at: www.vdh.state.va.us/medexam/donate.htm for more information.

Rochelle Altholz
State Administrator

FROM THE EDITOR

If you would like to see this newsletter via the internet, the address is:

www.vdh.state.va.us/medexam/index.htm

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Comments, suggestions and questions are welcome.

This newsletter was created by Beth Plutro, Executive Secretary, Sr., Central OCME